Harvesting with a Purpose

Part 1: Intermediate Harvests

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Before harvesting trees on your property, consult a professional forester for advice. A written management plan prepared by a forester is a useful tool in directing harvesting efforts.

A row thinning removes trees at fixed intervals throughout the stand.

UPON THE PURCHASE or inheritance of property, many landowners contact our firm and ask: "How can I change my forestland?" After consulting with these landowners, we recommend that they consider why their forestland should be changed. Since no other management practice impacts forestland more than harvesting, a landowner or forest manager should first have a purpose before harvesting is initiated. A written forest management plan prepared by a competent resource professional, with the landowner's best interest in mind, is a useful tool in directing harvesting efforts.

The harvesting of trees, individually or in groups, is the primary method for change used by landowners. While there are many types of harvesting available, most fall into one of the following categories: (1) Intermediate, or those applied to an existing stand, and (2) Final, or those used to remove an existing stand and prepare the way for the stand to follow. In this article, each type of harvest will be examined and the benefits to non-industrial private landowners will be discussed.

There are basically three types of intermediate harvesting: (1) Thinning, (2) Improvement, and (3) Salvage/Sanitation.

Thinning

Thinning is by far the most utilized intermediate harvest employed by non-industrial private landowners. It is used primarily to stimulate growth of the final crop trees and to provide intermediate income. To accomplish this, several thinning methods have been created: (1) Low, (2) Crown, (3) Selection, (4) Geometric, and (5) Combination.

Low—The low thinning method is the oldest method of thinning used in forest management. It is also known as "thinning from below," "ordinary," or the "German method" (as this is where the method originated). Under this method, trees are removed from the lower crown and diameter classes (i.e. the smaller trees). Trees that are overtopped or that are classified as intermediate are removed. This is the only method of thinning that can be done without risk of reducing the gross production of wood, as no potential crop trees are removed. However, since removals are concentrated in the smaller trees, those removed in the first thinning may not be of commercial size. Therefore, the first thinning may actually cost the landowner money

A loblolly pine stand before and after thinning. A thinning such as this stimulates growth of remaining trees and provides income to the landowner.

using this method. For this reason, this type of method is most applicable in stands where all trees present are of merchantable size.

Crown—The crown thinning method was created in France to overcome some of the limitations of the Low thinning method. Under this method, trees are removed from the middle and upper portion of the crown and diameter classes rather than from the lower end. This method may also be referred to as "thinning from above" or "high thinning." Under this method, trees are removed from the upper crown classes to open up the canopy and favor development of the most promising trees. While most of the trees cut are classified as co-dominant, any other trees that interfere with the development of potential crop trees may also be removed (even if they are dominant). This method differs from the low thin in that most of the trees removed are from the upper portion of the crown classes while most of the intermediate and overtopped trees are left. The advantage of this type of thin is that the immediate returns are greater and the growth of the final crop trees is stimulated more than with the low thin. The disadvantage is obvious; a landowner may accidentally over-cut the dominants and reduce future growth!

Selection—Under this thinning method, the dominants, or larger trees are removed. This method varies greatly from the preceding two methods primarily by the fact that only the dominants are removed. This method of thinning may be referred to as "thinning of dominants" and is rarely used. The only practical application of the Selection method is in areas where the overstory (larger trees) is composed primarily of poorly formed trees or of an undesirable species. This type of thinning is best carried out early in the life of the stand and should later be replaced by other thinning methods.

Geometric—This method is so named because the trees to be cut or retained are selected based on some predetermined spacing. No regard is given to a tree's position in the canopy or size class. Most foresters refer to this method as "mechanical thinning" due to the mode of choice, not the use of machinery. This type of thinning is advantageous in treating young stands that are densely crowded and have not been previously thinned. It is also advantageous to the use of large, cumbersome equipment often used for thinning purposes. Geometric thinning is typically applied only in the first thinning or for pre-commercial thins. Under the "spacing thinning" method, trees at fixed intervals are chosen for retention and all others are cut. A "row thinning" occurs when trees are cut out in lines or narrow strips at fixed intervals throughout the stand. The advantage of this type of thinning is that it takes less training and supervision to implement. The primary disadvantage is that potential crop trees will be removed in areas designated to be harvested and less desirable trees will often be retained in areas that are not cut.

Combination—Typically in the South, a combination of thinning methods will be utilized during the life of a stand. For Southern yellow pine plantations, the first thinning often consists of a combination "row thin" and "crown thin." The second thin tends to be a low thin. If there is a third thin, it is usually either a low thin or combination low thin and spacing thin. The type of thin that is best for an individual landowner is dependent upon the objectives, the age and density of the timber present, and the potential productivity of the site and timber. As with a management plan, advice should be sought from a competent resource professional with the landowner's best interest in mind before thinning is initiated.

Improvement Harvest

This type of intermediate harvest is designed to free good trees, which have grown beyond the sapling stage, from the competition of the older, less desirable overstory trees. Improvement cuttings are most often applied to stands of irregular age distribution and are often conducted simultaneously with a true thin or reproduction harvest. While they are rare in the Southeastern U.S., they are sometimes used to rehabilitate a stand in an effort to make it more productive.

Salvage/Sanitation Harvest

Salvage and sanitation harvests are made for the primary purpose of removing trees that have been or are in imminent danger of being killed or damaged by injurious agents such as pests. Using the salvage harvest, a landowner attempts to salvage the value of trees that would be lost. Therefore, the trees removed are of commercial size and the landowner salvages at least a portion of their value. Under a sanitation cutting, trees are eliminated that have been attacked or are in imminent danger of being attacked in an effort to prevent pests from spreading to other trees. A sanitation harvest differs from a salvage harvest primarily in that it is not necessarily confined to the removal of merchantable trees.

Conclusion

Intermediate harvesting can be a valuable tool to help landowners achieve their forest management objectives. Properly applied, thinnings, improvement harvests, and salvage/sanitation harvests can be used to improve existing forest stands. As with most forest management activities, the advice of a reputable resource professional should be sought before harvesting efforts are initiated.

Reference

Smith, David M., **The Practice of Silviculture: 8th Edition.** New York: John Wiley & Sons, 1986.

CROWN CLASSIFICATIONS

Dominant — trees with crowns extending above the general level of crown cover and receiving full light from above and partly from the side; larger than the average trees in the stand, and with crowns well developed but possibly somewhat crowded on the sides.

Co-dominant — trees with crowns forming the general level of the crown cover and receiving full light from above but comparatively little from the sides; usually with medium-sized crowns more or less crowded on the sides.

Intermediate — trees shorter than those in the two preceding classes but with crowns extending into the crown cover formed by dominants and co-dominants; receiving a little direct light from above but none from the sides; usually with small crowns considerably crowded on the sides.

Suppressed — trees with small, thin crowns entirely below the general level of the crown cover, receiving virtually no direct light either from above or from the sides.